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THE ILLINOIS ENGINEER, JANUARY, 1955—VOLUME XXXI, NO. 1

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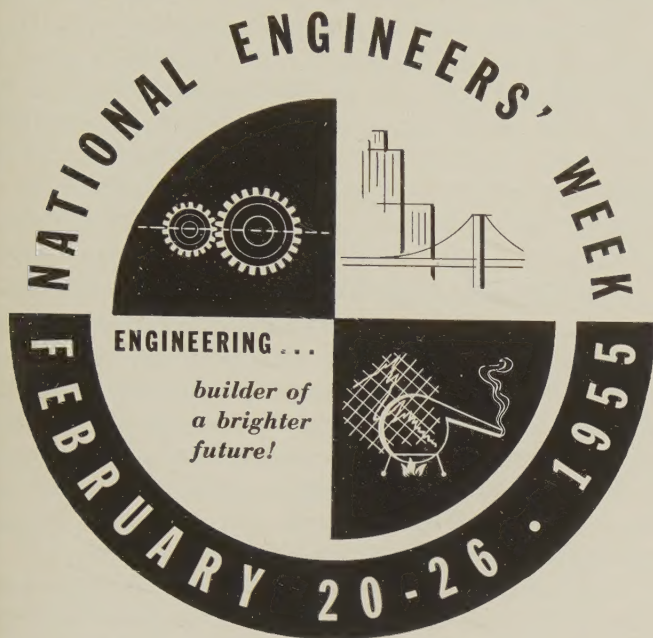
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Of Interest to I. S. P. E.

THE ILLINOIS ENGINEER—THIS MONTH
National Engineers' Week—February 20-26



Last year a number of the Chapters of I.S.P.E. did an excellent job of celebrating National Engineers' Week. We hope that this year more chapters will take advantage of this opportunity to publicize the work of the engineer. There is still time to make plans in your locality. The officers of each chapter have received from the National Headquarters of the N.S.P.E. a kit to help get newspaper publicity, arrange radio and TV shows, etc. Use this kit and plan your project now.

W. A. OLIVER, Editor

LAKE COUNTY PLANS FOR ENGINEERS' WEEK

Lake County Chapter again this year is making plans for an elaborate *News-Sun* (newspaper) Supplement in commemoration of Engineers' Week, February 20-26, 1955. This project is one of the Society's outstanding achievements in connection with the annual recognition of engineering accomplishments.

COST OF LIVING INDEX

The cost of living correction factor to be applied to the I.S.P.E. Schedule of Minimum Fees and Salaries is based upon the Consumer Price Index of the 1947-49 average as determined by the Bureau of Labor Statistics. On the 1947-49 base the correction factor for October, 1954, is 114.5.

"It is a principle of law well established that an automobile is not inherently a dangerous instrumentality. It is not the ferocity of autos that is to be feared, but the ferocity of those who drive them."—*Superior Court of New Jersey.*

COMMITTEE CHAIRMEN FOR ANNUAL MEETING ANNOUNCED

The Rockford Chapter has recently announced the names of the committee chairmen for the 70th Annual Meeting of the Society which will be held at the Hotel Faust, Rockford, on March 31, April 1 and 2, 1955.

The Chairmen and Co-Chairmen are as follows:

General Chairman.....	W. F. Edwards
Finance Committee Chairman.....	E. S. Bradley
Co-chairman	J. Grubbs
Food Committee Chairman.....	E. Gronki
Co-chairman	F. Polkowski
Entertainment Committee Chairman.....	S. Thorp
Co-chairman	L. Daigle
Exhibits Committee Chairman.....	C. Love
Co-chairman	O. Begtrup
Publicity Committee Chairman.....	William Beagley
Co-chairman	L. Daigle
Reservations and Reception Chairman....	Bertil Anderson
Business Program Chairman.....	Royce Johnson
Women's Auxiliary Chairman.....	Mrs. J. B. Schubeler
Co-chairman.....	Mrs. Art Myers

JOLIET CHAPTER MAKES FIELD TRIP

The field trip to the Public Service Company's Station 8 at Romeoville was a great success. For the 35 who made the trip it was an interesting experience to see a modern electric generating station in the various stages of construction. The assembly of the boilers was of particular interest. The Public Service guides did a splendid job of explaining the various phases of the construction.

70th Annual Meeting Hotel Faust, Rockford March 31, April 1 and 2, 1955

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SUBSCRIPTION RATES

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AUXILIARY ACTIVITIES

Rockford Chapter

The first official meeting of the Rockford Women's Auxiliary of the Illinois Society of Professional Engineers was held November 9, 1954, at the home of Mrs. Lyle Porter, 1707 Fifteenth Avenue.

Arnold Lundgren, P.E., registered land surveyor for the State of Illinois, gave a most interesting talk on "Surveying; past, present and future." The group decided to broaden their knowledge of the engineering profession by asking a specialist in a different branch of engineering to speak at each meeting.

A short business meeting was held following Mr. Lundgren's speech. The officers for this initial year are as follows: Mrs. Charles Debes, President; Mrs. J. B. Schubeler, Vice-President; Mrs. J. K. Grubbs, Secretary; Mrs. Lyle Porter, Treasurer; Mrs. Robert Ahlgren, Scribe; and Mrs. Henry Riedesel, Mrs. Royce Johnson, and Mrs. John Duguid, Directors.

After their final class session, October 20th, we entertained with donuts and coffee, the future Professional Engineers who were headed for Chicago to take their Professional Engineers Examination.

St. Clair Chapter

The Auxiliary of the St. Clair Chapter of the Illinois Society of Professional Engineers has an active membership. At a recent meeting at the Elks Club in Belleville, the following officers were elected: president, Mrs. Earl Markwardt; vice-president, Mrs. Devereaux Murphy; secretary, Mrs. Melvin Dobbs; treasurer, Mrs. Laurence Keenan; delegate, Mrs. M. Garcia; board of directors, Mrs. Arthur Feickert, Mrs. William Keeley and Mrs. David Johnston.

During the past year, the auxiliary assisted the Engineers Society by entertaining the wives of the delegates to the state convention which was held at the Broadview Hotel, East St. Louis, Illinois, on March 25-27, 1954.

The ladies had a get-acquainted tea for the guests, a conducted bus tour of joints of interest in St. Louis, a Mad-Hatter breakfast, and a card party for the visiting wives of the delegates.

On December 4, 1954, the auxiliary members attended a dinner dance with their husbands at the installation of officers of the Professional Engineers Society.

GEBHARDT CHAIRMAN OF IMPORTANT DECATUR COMMITTEE

Charles F. Gebhardt, consulting engineer, has been appointed chairman of the Engineers' Advisory Committee for the Decatur public school building program. Appointed to the committee to fill the vacancy left by Gebhardt is Emerson A. Shultz, electrical engineer with the Illinois Power Company. The appointments were announced by Fred Tratzik, president of the Central Illinois Chapter of the Illinois Society of Professional

Engineers, from whose membership the committee is chosen.

Purpose of the committee, first set up a year ago, is to assist and advise the Decatur Board of Education in getting the most for its money in the new public school building project.

Other members of the five-man committee are:

W. R. Stoune, partner in the contracting firm of Fisher-Stoune, Inc.; R. W. Harrington, structural designer for the Staley Company; Edwin F. Schwalbe, mechanical engineer with the Staley Company. Collectively the committee represents more than 100 years of engineering experience.

Decatur Review

"MIKE" KRAUSE INSTALLED AT ST. CLAIR

Loren "Mike" Krause of East St. Louis was installed as president of the St. Clair Chapter of the Illinois Society of Professional Engineers, December 4, 1954. Installation ceremonies were held at 7 p.m. in the Elks Club at Belleville, Illinois. Mr. Krause is the operator of the L. Mike Krause Construction Co., Inc., 1910 St. Louis Avenue, East St. Louis, Illinois. He is a past president of the East St. Louis Kiwanis Club.

Other officers elected were Manuel Garcia, office manager and engineer for the Alton and Southern Railroad, vice president; Stanley Petraitis, engineer for Socony Vacuum Oil Co., Inc., secretary-treasurer; L. J. Keenan, Superintendent of Maintenance at Socony Vacuum Oil Co., Inc., chapter representative.

J. R. GARDNER, 2ND V.P., A.S.C.E. SECTION

J. R. Gardner, Representative on the Society's Board of Direction from Central Illinois Chapter, was recently elected 2nd Vice President of the Central Illinois Section of the American Society of Civil Engineers. Mr. Gardner is associated with Warren and Van Praag of Decatur.

GRAF RECEIVES RECOGNITION FROM I.R.E.

Alois W. Graf, Vice President elect of the Chicago Chapter, has been elected to the grade of Fellow in the Institute of Radio Engineers, "for his contributions to the radio engineering profession." He will receive the award at the Annual Recognition Dinner of the Chicago Section of I.R.E. on March 4th.

KEEP PACE WITH TRAFFIC

Accidents can be avoided by keeping pace with the rest of the traffic on a road or street. Motorists who drive too fast must pass many other cars, increasing their own hazard; motorists who drive too slowly cause other drivers to pass them too frequently, and often at the wrong time.

Reputation is what you have when you come to a new community. Character is what you have when you go away . . .

REPORT PUBLISHED ON FLOODS IN ILLINOIS

The Illinois Department of Public Works and Buildings, Division of Waterways, announces the release of a comprehensive report on the magnitude and frequency of floods on Illinois streams. The report was prepared as a cooperative project between the Division of Waterways and the United States Geological Survey, Water Resources Division. Author of the report is Mr. William D. Mitchell, Hydraulic Engineer of the Geological Survey in the district office at 605 South Neil Street, Champaign, Illinois.

The report, entitled "Floods in Illinois: magnitude and frequency," includes a tabulation of the crest elevation and discharge for all floods that have been observed by the U. S. Geological Survey during the periods of operation of more than 100 gaging stations at various points on Illinois streams. Although the period of observations at some of these points is relatively short, many of the gaging stations have records for more than 35 years. The record for one station, Illinois River at Marseilles, has been extended to cover a period of 60 years.

The data are analyzed and transformed into diagrams in accordance with the most modern concepts of hydrology. From these diagrams the reader may determine the expected frequency, on an average basis, for the recurrence of a flood of given magnitude at any of the points of observation. In addition, methods are presented whereby the reader may estimate the magnitude-frequency relation for other locations on Illinois streams, even though such locations are not the sites of observations. Such data should be very helpful to engineers in the design of structures that may be affected by floods. Examples of probable use are in the necessary capacity for the spillways of impounding reservoirs, and in the proper area for the waterway opening of highway bridges.

The Division of Waterways plans to distribute copies of the report to libraries and to interested state and federal agencies. Other interested parties may obtain copies on request to the Chief Engineer, Division of Waterways, 201 West Monroe Street, Springfield, Illinois, or to the District Engineers, U. S. Geological Survey, 605 South Neil Street, Champaign, Illinois.

Mr. Mitchell, the author of the report, has been employed by the U. S. Geological Survey since 1928. He has been assigned to the Illinois district since 1939, and thus has had ample opportunity to become intimately acquainted with flood occurrences in Illinois. He holds degrees in civil engineering from Purdue University and from the University of Illinois. He is a member of the National Society of Professional Engineers, the Illinois Society of Professional Engineers, the American Society of Civil Engineers, and the American Geophysical Union.

"Impossible!" That is not good French.

—*Napoleon*

Obituary

Earl E. Cooper, Past President of the Illinois Society of Professional Engineers, died suddenly at his home in Decatur on October 29, 1954.



EARL E. COOPER

Mr. Cooper was born February 13, 1892, in Vincennes, Indiana. He was a graduate of Bradley Polytechnic Institute of Peoria. In 1948, Mr. Cooper retired from his position as Chief Engineer and General Superintendent of the Chambers, Bering & Quinlan foundry in Decatur, Illinois.

Mr. Cooper was recently appointed to the engineering advisory board of the Decatur Public Schools. He was formerly Superintendent of the Decatur Water Supply Company for the building of Lake Decatur.

He was a member of the Society for the Preservation and Encouragement of Barbershop Quartet Singing in America, the Lions Club, and the First Methodist Church.

He leaves his wife; his mother, Mrs. Mary Cox Cooper of Ft. Worth, Tex.; a son, Jack of Danville; one daughter, Mrs. Joan Threlfall of Pecos, Tex.; four brothers, Merle M. of Decatur, John D. of Robinson, Charles A. of Battle Creek, Michigan, and Emil R. of Glen Ellyn; three sisters, Miss Leona Cooper and Mrs. Ruth Bandy, both of Decatur, and Mrs. Geraldine Hunt of Ft. Worth, Tex., and four grandchildren.

Earl Cooper served the Illinois Society of Professional Engineers long and faithfully. He was elected President in 1948 during the Society's sixty-third year. His many friends in the Central Illinois Chapter as well as throughout the state organization will long remember his calm and unruffled handling of society business. It is men like Mr. Cooper who have been primarily instrumental in maintaining the stability and progress of the Society throughout the years. His place will be hard to fill.

BRADLEY UNIVERSITY STUDENT CHAPTER

The October 12, 1954, meeting of the Bradley University Student Chapter of the Illinois Society of Professional Engineers was called to order by President Jim Gunion at 7:40 p.m. in room 203 of Holmes Hall. Present were 14 members.

The minutes of the previous meeting were approved as read. The first order of business for the new year was an introduction of the officers and a presentation of our new members.

The following men were chosen as committee heads for the coming year:

Publicity Committee Chairman.....Bill Hill
Program Committee Chairman.....Earl Krueger
Refreshments Committee Chairman.....Clifford Rugh

A discussion was held on the objectives, purposes, and advantages of the Society of Professional Engineers and our own student branch.

The possibility of a tour through a local coal mine was discussed and referred to the program committee.

Earl Krueger moved the meeting be adjourned, and President Gunion announced that movies and refreshments would follow adjournment.

Al Polich, Secretary

CHICAGO CHAPTER ADOPTS RESOLUTION

Restoration of a Separate Professional Classification in the Federal Civil Service Resolution

(Published as Information)

WHEREAS, the operation of the Federal Civil Service formerly classified employees under "P" (professional), "SP" (subprofessional), and "CAF" (clerical, administrative, and fiscal headings), and

WHEREAS, since 1949, all employees formerly classed as P, SP, and CAF are now placed under a single heading known as GS (general service) and

WHEREAS, the present classification system fails to give engineers and other professionally trained employees the recognition and distinction which they deserve by virtue of their professional attainments and

WHEREAS, the lack of identity which prevails is detrimental to the age-old struggle of the engineer for professional recognition, and inconsistent with the objectives of the ISPE and other engineering organizations, and

WHEREAS, job analysis and classification of engineers is generally accomplished by non-engineers who by lack of professional background are unable to properly grade engineers regardless of their sincerity and capability in non-professional work and

WHEREAS, a similar situation exists with regard to the medical and legal professions, and

WHEREAS, the conditions above stated are believed to be detrimental to the efficiency of governmental operations,

NOW THEREFORE BE IT RESOLVED THAT the Chicago Chapter of the Illinois Society of Professional Engineers desires the parent society, through its legislative representative in Washington, and by whatever other means may be available, to exercise its influence toward revision of the Federal Civil Service Classification System to provide for the establishment of a group of positions restricted to members of the learned professions including the practice of engineering, qualification for the latter to consist of graduation from an accredited college of engineering or possession of a current certificate establishing the right to practice the profession in one or more states, and toward revision of the system of job analysis and classification so as to provide for rating of professional employees by professional employees rather than by clerical and administrative personnel.

Unless a man undertakes more than he possibly can do he will never do all that he can.

—Henry Drummond.

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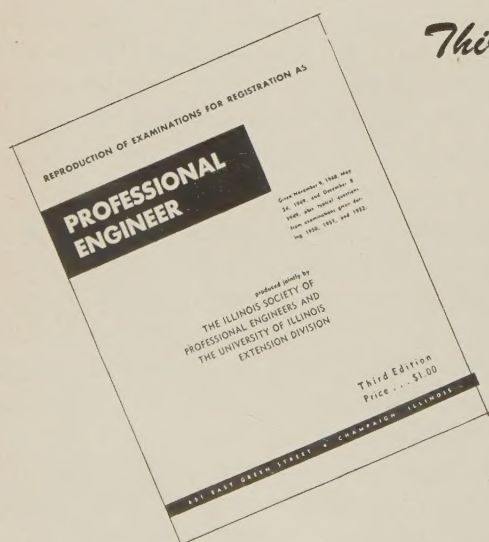
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What's the Outlook for Sanitary Engineers?

* CLARENCE W. KLASSEN, President I.S.P.E.

Chief Sanitary Engineer, Illinois Department of Public Health

If I were to select a creed for the outlook of the sanitary engineer it would begin with the words "I know."

I know that bodily health is necessary to continued and effective work and that health is the most natural thing in the world.

I know I am living in a world where nothing is permanent but change and that I can help change the environmental way of living so my fellow men can enjoy a longer and healthier life.

I know I am influenced by the examples and work of men who are no longer alive and that the work I do can, in a degree, influence people who may live with and after me to enjoy the investments in and profits from living in a clean community.

I know that to improve my own professional status, I must practice mutuality within my profession and those allied with it.

I know that the reward which is held out for my work is not rest, nor immunity from work or solely monetary remuneration, but rather the increased capacity for my fellow men to help attain and maintain man's most precious possession—HEALTH.

Regardless of what branch of the engineering profession we are considering, the outlook or future prospects of its members is essentially determined by four basic factors: first, by those particular characteristics or necessary qualifications peculiar to him and which especially fit him to accomplish certain tasks; secondly, the scope of his field of activity and his particular role in it; thirdly, the real potentialities of his sphere of activities; and lastly, his concept or interpretation of these potentialities and his efforts to develop them to their fullest usefulness.

First, what are these particular technical skills which peculiarly differentiate a person known as a sanitary engineer and theoretically give him the proficiency to contribute his talents to aid his fellow men to attain this priceless possession called health?

A sanitary engineer is a person who has fitted himself by training, study, or experience to conceive, design, or operate engineering works developed for the protection and promotion of public health, or capable of injuring the public health through faulty conception, design construction or operation. The ability to identify and evaluate in terms of their public health implications, factors connected with such engineering works that will prevent injury to health or promote health constitutes the basic differentiation between sanitary and other branches of engineering such as civil, mechanical, electrical, or chemical engineers.

The target objective of the sanitary engineer is to preserve health, but the preservation of health is based on *prevention* of disease and prevention is a difficult thing to precisely evaluate, for it is measured in seemingly abstract and apparently intangible terms of what does *not* happen rather than what *does*. Thus to engineers accustomed to dealing in the material and tangible, it is often difficult to translate engineering principles and integrate their application into terms of what is called "health services." Especially in the case of the younger sanitary engineers this difficulty is more conceivable, particularly so if they are employed in a health organization administratively dominated by those who attempt to rationalize their own inadequacies and ineffectiveness by conveniently hiding behind this nonexistent cloak of "intangibility." Health is tangible, it is real, the sanitary engineer must first of all recognize and believe this and not be erroneously influenced and deterred in this concept. This is professionally essential—for health is the most natural thing in the world. It is natural to be healthy, for, are we not part of nature? Nature needs man so that he can be useful to other men. The very definition of engineering, "harnessing the forces of nature for their use and convenience of man," makes the role of the sanitary engineer a natural one.

The practice of what we today call public health is founded upon two basic services to the public. All efforts to secure health protection fall into two categories, (1) personal health services or those directed toward the individual and (2) environmental health services or those relating to the control of our environment. Both of these have been the outgrowth of two definite concepts; one held principally by the medical profession is that doctors symbolizing curative medicine are the dominant force necessary to attain good health; the other, that through the application of sanitary science to environment, significant results will be produced in securing and improving health beyond the capacity of the individual private practitioner. This latter approach can be termed "mass protection" where through individual action by a sanitary engineer on a phase of our environment, health protection is given to many. This type of "mass health protection" by individual action contrasted with "individual health protection," by individual action is the basic public health difference in the approach to disease prevention by the sanitary engineer as compared with that of his medical counterpart.

Over 3,000 years ago man probably first began to realize that his life could be materially preserved if he observed certain basic rules in keeping his surroundings or environment clean. The early nomads pitched camp where natural waters abounded and if the supply became fouled or when his refuse accumulated to make

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living a hazard, he moved. An early sign of civilization was when he remained in one locality—then cleanup days became a vital necessity. When conditions of accumulated filth eventually caused him to fear for his well-being, necessity made him learn more about what we now call sanitation. Thus, the science of sanitation, the cornerstone on which our modern structure of sanitation is built was born of a sheer need to survive. Sanitation became a *MEANS* of living.

The evolution of the science of sanitation, which has undergone three principal cycles of development, is important to our outlook, for the keys to sanitation vistas of the future often involve views through doors that have been unlocked in the past.

From early public health history until the early 1900's could be termed "the period of justification or fear" where action was primarily justified on the basis of an epidemic that had occurred or the fear that one would develop. The next thirty years might well be termed "the period of methodization," where prevention of disease was accelerated and accomplished through the development and perfection of advances in sanitary techniques. These advances centered principally around such environmental vitalities as the protection of water supplies, the proper collection and disposal of human wastes, the protection of milk and food, all of which are still basically essential to health protection and survival.

Just prior to World War II a new concept, yes, a new era in sanitation was approaching and with it the need for a broader concept of his job by the sanitary engineer. This new era, reflecting the times, can, for the want of a better name, be termed "the period of socialization" or perhaps preferably "humanization." Here, conditions of our environment which had heretofore not been considered as basically essential to our survival were beginning to gain attention and prominence among the more progressive and aggressive health agencies. A broader interpretation of health was making its appearance. The *presence of health* rather than the *absence of disease* was keynoted. The ability to enjoy a more comfortable life in clean surroundings was looked upon as a reality. Sanitation thus became a *WAY* of living as well as a *MEANS* of living.

The advances in sanitation which are synonymous with the advances in the sanitary engineering profession depend in a great measure and revolve around this broadening concept of sanitation and our development of its potentialities. We must, however, recognize that it is bound up in the administrative practices of public health, for today the administration of public health sets the pace for this mass protection and quality living. Today we still find many health agencies operating on the premise that sanitation is merely a *MEANS* rather than a *WAY* of living. Many health agencies, yes, some unfortunately through the influence of their own sanitary engineers, are limiting the potentialities of a sanitation program and thus helping to shackle the sanitary engineering profession by picturing sanitation and its

future as an engineering technique or method, an individual or an organization, an ordinance or regulation, instead of as a way of man living with man. Sanitation today offers one of the greatest challenges and opportunities in the field of engineering—the challenge and opportunity to transform the findings of the physical science of engineering into terms of healthful living through improved environment.

Sanitation has an illustrious past—its accomplishments are linked with the names and contributions of many "giants" in engineering. Sanitation has advanced—it is not a static activity. Our accomplishments have been recounted during this centennial but let us not dwell too much on past accomplishments for once this process starts, the period of dynamic work is close to its end. Sanitation and the sanitary engineering profession will advance—yes, if necessary, in spite of some within the profession who may lack the vision of its potentialities, and some administering public health who either cannot or chose not to acknowledge its achievabilities. However, in an activity so closely woven into our daily living, the public itself is quick to recognize not only the needs but also the faults and shortcomings in a governmental health agency not meeting these recognized needs. We in sanitary engineering cannot defend a nonprogressive sanitation program either from the technical or administrative standpoint, nor elevate the status of our profession by the mere pointing of a finger at weak links in our profession. Neither can we rest on past laurels—a record of past achievements is not enough. We cannot just look back to great technical yesterdays—we must look forward to great technical and administrative tomorrows. In the words of Justice Holmes, "We must sail—sometimes with the wind, sometimes against it, but we must sail and not drift or be at anchor."

An appraisal of a program of sanitary engineering activities on the basis of what the people have a right to expect will not only chart the course for our future but will also determine whether we in sanitary engineering are proceeding with a "short sail" and exposing our course to hazardous "cross winds" from "guild conscience" origins.

Today's challenges to the sanitary engineer to "produce" are real—made real by the expectations of a public becoming aware of the benefits it can derive from a complete sanitation program embracing all phases of our environment.

As a way of living, people have come to expect not only sheer prevention of specific disease, but the right and opportunity to share the profits of living in a clean community. In any governmental health jurisdiction, wherever it exists, local, state or federal, the people of that community have a right to expect their sanitation services administered by persons occupying those administrative and technical positions solely because they are qualified. The people likewise have a right to expect a sanitary engineering program so well rounded and

practically administered that it will result in controlling *all* phases of their environment. The public is entitled to know what they receive for that portion of their dollar expended for sanitation and in a health jurisdiction to know that sanitation is receiving its share of the available funds commensurate with the important vitalities it represents to daily living.

While the sanitary engineer "must know," the public is not primarily concerned with what a sanitary engineer knows or how many hours of graduate work or professional degrees he has accumulated through academic training. The public is more concerned with what he is doing with that knowledge to improve their environment and thus their way of living.

Why does sanitary engineering hold such promise—what is our real product and what can we really sell, promote and offer as a result of our years of professional training and experience in sanitation? In addition to the specific prevention of environmental-borne diseases, we can offer a quality of healthful living that touches the life of every living person and will affect the living of the yet unborn. Is there another engineering activity that holds such a challenge—such an outlook?

Modern sanitation on which the future of the sanitary engineer must be built is more than water and sewage. While such problems must be reemphasized and not de-emphasized and now and always will be of functional importance in our profession, in the modern concept of environmental control they are but links in the ever-lengthening chain of sanitation activities. Our outlook must be based upon a complete modern sanitation program which encompasses all phases of our environment and which includes seven major fields of activity: these are water, wastes, air, shelter, food, natural hazards, and man-made hazards. One or more of these touch the life and well-being of every person, without exception, for these represent *WHERE* and *HOW* we live. This expansion and change in "tempo" in the sanitary engineer's concept of environmental control can best be illustrated by a few specific examples of trends and problems both current and those on the horizon. I especially like the term "horizon" and its implications to future problems—for the horizon is that place where the sky and ground appear to meet, a point actually out of reach, so it represents an ever-present goal or objective. It does, however, symbolize a type of approach to future problems admittedly utopian in character but one which does embody certain essential characteristics. That place where, if the sanitary engineer is to improve his essential status in our modern civilization, he can have his head in the clouds and still keep his feet on the ground.

Freedom from potential disease and the prevention of illness will continue to be of prime concern to the sanitary engineer. While admittedly frequently difficult to evaluate, the true value of prevention can often only be determined and concretely shown to the public by the consequences where proper preventive measures were not practiced. Thus to the sanitary engineer, epidemics of

disease are of extreme importance for they are in a sense the yardsticks by which the true value of his work can be measured. They can become important tools in his hands to mold and build public opinion. Epidemics are of two-fold importance—they embody both the concrete evidence of what can happen where proper sanitation precautions were not followed or ignored, and, conversely, afford an opportunity to demonstrate that the illness could have been controlled by following accepted sanitation practices. In some few epidemics when legal action results, testimony and court decisions make contributions which are of extreme importance and usefulness and can serve as guide posts for the tomorrows.

Sentiment and objective idealism in the right proportions are all right and are needed in our outlook to the future but to an engineer both must be used as the warp and woof of the practical.

Water

One of the earliest environmental activities and still one of basic practical importance is the control of drinking water supplies and this field is replete with practical examples of the "new look" at sanitation. If I were to select a theme for this phase of this paper, it would paraphrase the words of a famous statesman by saying, "A water supply is the foundation upon which rests the health and progress of a people and the protection of that supply should be the first duty of every citizen." The interpretation of the term "protection" is all important to the sanitary engineer and his future. To him it must mean the safeguarding of principles upon which a successful supply is based such as adequacy, physical, sanitary and mineral quality. The proper concept of these are now more than ever important when a variety of interpretations are being advanced often by persons outside of our engineering profession in an attempt to further "socialize" this vital utility. How far we should go in "socializing" our water supplies for various local needs involves many interesting questions—questions impinging on the future of sanitary engineering. The idea of mass protection through mass treatment utilizing the public water supply as a medium is not too foreign to some of our present trends in the direction of what some may term "socialized medicine." However, mass protection through preventing water-borne illness is destined to occupy the major thinking of the sanitary engineer for some time in the future.

Until recently the only recognized water-borne human illnesses have been those involving the intestinal tract—typhoid, dysentery, and cholera. There are, however, indications in the outlook for sanitary engineers that other diseases might be considered in the future as water-borne even though at present there is only obscure evidence pointing in that direction. It does emphasize the need for open-mindedness on the part of sanitary engineers in public health. Let me cite a few examples.

Shistosomiasis was not common in the sanitary engineer's water supply vocabulary until World War II and

our Pacific operations. A few people knew the disease as one affecting our blood stream and one confined to remote parts of the globe. The infection is secured by wading, swimming, or drinking water affected with cercaria, a free swimming larval stage of a parasitic worm. We already have its "first cousin" known as "swimmer's itch" in our northern waters. A species of snail acts as its host. Whether or not a specific snail in this country can act as the host is not definitely known and much work remains to be done to assure a break in any chain that would complete this cycle for humans in this country.

This again serves to illustrate "the professionally open-mindedness" needed by the sanitary engineer of tomorrow to recognize the value and need of the biologist as an integral part of his working team.

Infectious hepatitis (infection of the liver), commonly known as jaundice, has a more conclusive water-borne history. The causative virus is known to be included in the feces of affected persons. An epidemiological study of the outbreak in 1934 in this country involving 350 persons at a girls' camp concluded that the infection was transmitted to the majority of cases by water from a camp well.

Tularemia is normally thought to be transmitted from animals to man by inoculation or through insect hosts, notably ticks; however, there have been several reported instances implicating natural waters as a carrier of this causative agent. The first reported in 1934, in Russia, was an apparent epidemic among hay-field workers. A second reported water-borne outbreak was in 1936 in Turkey. While there are no recorded human infections from natural waters in this country, it is interesting and significant to note that there are a large number of cases reported, principally in the western states, where the source of infection has not been determined and of singular importance is the fact that studies by the Public Health Service have found that streams in that area are continuously contaminated by the tularemia organisms for periods of several months. Because these pathogenic organisms, possibly animal in origin, are found in potential sources of water supplies it, of course, cannot be concluded that this disease can be water-borne but it is a fact that will bear observation and consideration.

While it is a recognized fact that brucellosis is primarily regarded as a disease spread through contact and by products from affected animals, to the sanitary engineer the recorded water-borne epidemic of this disease and reported by a group of investigators, occurring at Michigan State College in 1938-39 has some significance. Furthermore, both of these emphasize the importance of animals as part of our environment and thus the veterinarian as a needed ally of the sanitary engineer.

Recently the sanitary engineer found himself confronted with an illness heretofore not considered as implicating drinking water supplies—methemoglobinemia, which causes a cyanotic condition in infants commonly referred to as "blue babies."

A large number of proven clinical cases now confirms the fact that nitrates as "N" in excess of 10 parts per million may cause the condition in infants. Such nitrate contents in water are not uncommon. Nitrates may occur naturally in ground water or may be present in surface waters from man-made pollution sources.

While the paucity of available data on hypertension (high blood pressure) does not directly point to our drinking water as a cause, the implications do have some basis. In a steadily aging population where a greater percentage of the older group are subjected to degenerative diseases, sodium becomes important. For example, persons seriously affected with a hypertensive disease may require a "salt-free" or very low sodium diet considered to be 200-500 milligrams of sodium per 24 hours. In a water with 200 parts per million of sodium (which is not uncommon) about 400 milligrams per day of sodium would be ingested or an amount significant in certain hypertensive cases. Knowledge of such facts hithertofore seldom if at all evaluated by the sanitary engineer must be part of his "equipment" for the future and merely is cited as another example of the need to consider for tomorrow what may today appear as "obscure" environmental water hazards.

Perhaps what might appear to be a "more obscure" example but one which we dare not lose sight of is the implication of the polysaccharides of two organisms commonly found in our surface water supplies as a possible cause of the disease "multiple sclerosis." The work and clinical experiences (yet unpublished) of the investigations may open a new chapter in our volume of water experiences and serve as another charted point on the route to stimulate and guide the thinking of the more progressive and alert sanitary engineers.

In many phases of our water supply, we have already passed through the era of justification, through the era of methodization, and now truly on the horizon of the socialization or humanization of our water supplies. Whenever we change the quality of water, we are altering our environment—the effects need not be simple, they may become increasingly complex and require the sound and practical leadership of that sanitary engineer who is trained in complete environmental control.

Wastes

The first rule of public health involves the collection and keeping under control our community wastes until they are rendered harmless and inoffensive. Is the outlook for the sanitary engineer in this field to continue to be limited by considering industrial wastes, garbage, refuse and sewage as wastes? This term carries with it the implication of "loss" and how can we become enthused or face future challenges in a field where we are at a psychological disadvantage at the outset. His outlook must be a "new look." He must not think of community wastes but rather of "environmental residues." This term is more than a mere euphemism for it symbolizes a necessary change in attitude and approach. Is

not our outlook and perspective broadened if we think in terms of environmental residues—for in reality they are just that, “community left-overs” filled with potentials as usable by-products of our environment. Already industrial residues have been converted to dog food, chicken food, bouillion cubes, vitamin B₂ for fortifying breakfast foods and hosts of others. From municipal residues, we have secured fats, oils, gas, and lately extracting vitamin B₁₂, from a most productive and common source—sludge from the activated sludge process in municipal sewage-treatment works.

No discussion of future “waste” problems would be complete without considering the radioactive gaseous, liquid and solids and their potential effect on our environment. For example, is the recent radioactive waste falling as rain in the Midwest and the result of radioactive “fall out” from the Nevada A-bomb tests a forerunner of what we may expect and with it potential hazards to lakes, streams and vegetation? The use of radiosopes in research, diagnosis, therapy, and industry is here to stay. The future of the sanitary engineer in this specialized field depends upon his willingness to face new problems. Radioactivity is a natural phenomenon and the fact that it has been multiplied by intelligence doesn’t alter this, neither should he be “frightened” away by those who may chose to cloak its environmental problems in a shroud of “professional mystery.” Even though environmental radioactive problems obviously have a beginning, but not foreseeable endings, they should serve to stimulate an excitation of the sanitary engineer’s intellectual curiosity. Things are secret only to those who neither know nor can understand.

While relatively young in years, our country is reaching its maturity in matters of natural resources. In this broad field of waste treatment the sanitary engineer must hold in his foresight the idea that the protection and proper use of our surface lakes and streams as water resources is a vital national problem. It is vital to the future of the sanitary engineer. He must also have the concept that pollution of these resources is not solely a problem of public health, nor fish and wild life, nor agriculture, nor industry, nor navigation, no power—but rather it is the combined problem of all these interests and cannot be solved by considering these separately. Practically speaking, pollution is a relative term—it is objectionable only in relation to the intended use of the stream—and thus any material, organic or inorganic, that is discharged into a stream to make the waters unfit for its reasonable intended use can only be termed pollution. Our natural waters are not merely one of nature’s gifts existing solely for our social pleasures, but as so completely, expressed by Oliver Wendell Holmes, “A river is more than an amenity, it is a treasure. It offers a necessity of life that must be rationed among those who have power over it.” This keynotes the need for the sound economic approach that must be that of the sanitary engineer not of tomorrow, for that may be too late, but of today.

The outlook of the sanitary engineer in the entire field of waste and water utilization is dependent upon his technical ability to translate the practical utilization of our industrial and community residues in terms of basic sanitary engineering principles, and on his vigilance in protecting our greatest resource—water, coupled with his broad, sound, economical, and practical approach to the reasonable uses of this resource.

Air

One of the greatest fields for the expansion of the sanitary engineer and one virtually yet untouched is that of atmospheric or air pollution control. By definition, pollution of the air is the emission into the atmosphere of harmful or obnoxious contaminants. Its health implication, demonstrated detrimental effect on plant and animal life, economic aspects of physical damage to structures, are real and are here to stay. Pollens, air-borne spores from interior or exterior mold growths, sheer dirt, dust, products of combustion, gas, fogs, mists, should share the attention of forward-looking sanitary engineers as air pollutants. Yes, even noise should gain attention as a potential pollutant of the atmosphere. The outlook for the sanitary engineer in this latter phase must be broadened to include the entire “acoustical spectrum” of noise, “wanted and unwanted.” Also, is it out of reason to conjecture that as part of atmospheric control, air-conditioning systems in buildings might provide a new medium for the mass distribution of beneficial substances such as immunization for specific diseases.

Again in this field, health, agricultural, and meteorological aspects reemphasize the need for active collaboration by the sanitary engineer and allied profession.

Shelter

In perhaps no other field is the outlook for the sanitary engineer more dependent upon the concept or interpretation of terms than in “housing.” To consider housing as “shelters build by governmental agencies” or merely as “slum clearance” is unfairly confining to restricted boundaries the activities of this important field. Housing in its broadest sense provides the WHERE we live, sanitation the WHY and HOW. Sanitation is the foundation on which housing is built and with this concept the work of the sanitary engineer in the housing field assumes boundless proportions. Health depends on where we live—on our housing, its benefits are real, tangible, for a people’s vitality does reflect their locality.

Food

There should be no need to emphasize to our profession the basic necessity for preventing illness and promoting our well-being by controlling the environmental aspects of what we eat and drink. This field of food sanitation holds one of the greatest potential health and economic challenges to the sanitary engineer. One-half of the population of this country derives its income from

the production, processing, handling and distribution of food. Annually, over twelve billion dollars are spent by persons in public eating and drinking places and daily over seventy million meals are prepared and served. In his "outlook" many sanitary engineers "overlook" professional possibilities and responsibilities and are standing by figuratively and literally watching other groups enter and "take over" the important environmental functions in the food, milk and beverage field. Our challenge in the food and beverage field is double-barreled—the challenge of the physical equipment and engineering techniques involved and of greater professional importance, the challenge to recognize and actively pursue this field as a basic and vital public health environmental activity.

Natural Environmental Hazards

It has been said "To accept nature without revision is to invite disaster." Ever present are natural obstacles to man's healthful and comfortable living. Certain plants, insects, and animal life influence our ability to live and thrive in our environment and these should become the concern of the sanitary engineer, for many of these problems will influence his perspective of tomorrow.

Insects, animals and plants form part of our natural environment. The diseases transmitted by flies, mosquitoes, lice, ticks, etc., are all too well known to the sanitary engineer. Also of the 83 communicable diseases listed by the American Public Health Association which are of public health importance, 30 are derived from animal sources. These emphasize their importance. Time does not permit even a mere mention of all the "insect and animal and plant spectrum of disease" and their potentialities—only one is cited as a typical example.

One virtually untouched field, and rich with potentialities, is that of aquatic algae growths—surprisingly as this might appear to some of you; to the sanitary engineer algae have principally been objectionable tastes and odors in domestic water supplies and in some instances indicators of stream conditions in pollution control. The possibility of algae causing poisoning of animals or man has not provoked much interest among the sanitary engineering profession. Possibly one reason is the lack of tangible evidence incriminating algae as an actual public health environmental problem. That some algae are pathologic to animals under certain conditions in at least part of their life cycle seems to have been proven in a number of instances. Time does not permit a recital of the interesting examples where algae have poisoned animals. In one instance evidence points strongly to the possibility of algae toxins passing through a municipal water-treatment plant and causing several thousand cases of gastro-intestinal upsets. The literature has not established thus far a clear-cut symptomatology for algae intoxications in either animals or birds. The sanitary engineer whose principal public health responsibility is the effect of environment on man

must keep in mind that some algae organisms have already proven lethal to animals and have never proven not lethal or toxic to humans. This is but another example of the need for close working relationship with the allied professions such as the biologist and the veterinarian.

In our "improvement on nature" a note of caution and warning is sounded. This era of "socialization in sanitation" has brought with it many ersatz solutions. The sanitary engineer of tomorrow must be prepared to evaluate their environmental effects both from a short and long term consideration. We are living in a day of "just as good substitutions" where we are attempting to synthesize, modify and fortify nature in every field of our environment—yes, even the dairy cow has not escaped. We must be able to intelligently decide whether in our modifications of hazards afforded by nature we are not substituting an even greater potential hazard created by man.

Man-Made Hazards

In our zeal to advance, some aspects of our health and well-being are often sacrificed on the altar of progress. The advantages of harnessing the forces of nature for their use and convenience of man often results in hazards to our daily living. Machines, the forces of electricity and products of chemistry, biology, atomic energy have resulted in dangers to workers, accidents away from and at home, toxicity of our soil, water, food, and air. Structures for working, living and playing have contributed environmental hazards to our way of living.

It would seem logical that coupled with our ingenuity to create is our ability to control. Where solutions to man-made environmental hazards have not been found, it merely indicates insufficient effort on the part of the profession responsible for their creation. Coupled with the lack of such effort has been the need for stimulus and leadership by our own profession. The solution to many of these man-made environmental problems is admittedly not simple. We can know some of the answers only where we can study man in his environment where he actually exists—and not in a test-tube laboratory experiment. In the majority of instances, problems of industrial production are closely interwoven into the public health sanitation solution. Industry is not a static activity—sanitary engineering should not be, it cannot be, if we are to keep abreast of living demands. Mutual understanding, yes, more than that, mutual confidence with industry is a prime requisite for the solution of sanitation problems involving products of industry. Changes and advances in industrial sanitation methods and equipment to meet public health demands and environmental needs are the principal factors from which can result a quality of health exceeded by no other nation. They are likewise the factors which can determine the future of the sanitary engineer in this field if his future thinking is not characterized by his limited thinking in the past.

Problems that will create challenges for the future to those working in the environmental sanitation field are not necessarily those problems involving engineering techniques and methods. If we are to translate the broader concepts of public needs into sound and economical engineering administration and progress the real challenge in the outlook for the sanitary engineer is his desire and ability to be part of a team.

The outlook for the sanitary engineer must include the knowledge that we are living in an age of synthesis—that our engineering specialty is a part of something else. The true “success story” of the sanitary engineer of tomorrow is dependent upon his fitting his part into the total picture. No field of engineering demonstrates better than the field of sanitation the importance of combining and blending the qualities of different sciences and different professional personnel to achieve better health for the people. Sanitation is becoming increasingly the task of specialists in fields that show a tendency to grow progressively narrower. There is a recognized danger in this trend for an engineer may be filled with a jargon of his particular specialty and know all of its literature and ramifications but more frequently than not will then regard the next subject or one allied with his work as something belonging to a colleague and will consider any real interest manifested on his part as an unwarranted intrusion. The opposite, which is an equal hazard, is likewise often observed of the person who invades all fields unprepared and with little or no knowledge or appreciation of its problems. For example, if the difficulty of an environmental problem is animal in essence then ten sanitary engineers ignorant of veterinary medicine would get as far as one such engineer and no farther. The same applies conversely to a veterinarian in his approach to an engineering problem, but if a veterinarian who might know little actual sanitary engineering works together with a sanitary engineer who knows little veterinary medicine and if the one will be able to state his problem in terms that the other can manipulate, then the second will be able to put his answers in some form the first can understand. The veterinarian was merely selected as an example but what is true for him can be equally applied by the sanitary engineer to the chemist, bacteriologist, biologist, the doctor or dentist.

The most fruitful areas for growth in the sanitary engineering field of environmental sanitation are those which have been neglected as no-man's land and which lie between the several recognized established fields of environmental activities. The middle ground or boundary regions between the seven normally defined activities of the sanitary engineer and the various other technical workers allied with him offer some of the richest opportunities and challenges. There is a recognized need for the exploration of many of these blank spaces on the public health sanitation map which not only involve but require a mutual appreciation by both the sanitary engineer and his fellow workers. All must be in the habit of working together, of knowing each other's

intellectual customs, recognizing, and, above all, appreciating the significance of his colleague's suggestions. I again want to cite the veterinarian as an example only because the need for his skills is becoming increasingly important and yet not too often realized or appreciated by the sanitary engineer in a modern environmental control program. In problems involving engineering and veterinary medicine, the engineer need not have the skill to perform a pathological animal examination but he should have the knowledge to appreciate its importance and significance as applied to the problems of his particular field. Likewise the veterinarian need not be able to understand the technicalities, for example, of a waste-treatment process but he should be able to grasp its sanitary significance and advise the sanitary engineer what he should look for in applying its results to animal health. Progress in sanitary engineering can only come by overcoming any reluctance to move into fields of environmental activities peripheral to those traditionally recognized.

The entire profession of engineering can rise with the broader concept of sanitation. The expansion and outlook for sanitary engineers to meet the new professional challenges are not primarily problems of new engineering methods and techniques for these are only tools, but rather are dependent upon the ability of those in the profession to combine their joint efforts with allied profession in the field of environmental control to meet the demands of the people for quality living.

We must come to realize that sanitation, the workshop of the sanitary engineer, can no longer be defined as “just another” so-called activity of some political subdivision—it is more than water, sewage, garbage, or rats; in its modern concept sanitation is the where, the why, and the way of living expressed by the clean home, the clean farm, the clean neighborhood or community. Being a way of living it must and it will come from within the people, but can and must be stimulated by the progressive outlook of the sanitary engineer himself.

It must be nourished by knowledge—by the creed “I know”—sanitation education is synonymous with public needs—and the sanitary engineer's application of that education must have as its objective to influence public demands to conform to public needs. Sanitation has, is, and will continue to grow as an obligation of the sanitary engineer in his mutual relations within his own profession and with all those allied with it.

The modern concept for sanitation and its potential benefits, both to the public and our profession, form a large part of our working capital—it behooves us as sanitary engineers not to sell it short. Never before was it more vital that we in sanitary engineering realize that cooperation not only within our own profession but with all those that can be allied with us, is no longer a mere expression of sentiment but is truly an engineering economic necessity.

Our future, our field of sanitation today is a dollars-and-cents investment in the WHERE, the WHY, and WAY or living—the outlook and the future of the sani-

tary engineer is dependent upon his ability today to make that investment pay the greatest possible dividends tomorrow—upon the breadth of his environmental concept that he can protect today for tomorrow man's most precious possession—health. That's the real answer to the question—What's the outlook for the sanitary engineer—His future is now!

SUBJECTS FOR TALKS

By **Bonnell H. Allen, Chicago Manager, E. S. P. S.**

They can be adjusted to fit any allowed time ranging from 20 to 60 minutes and in most cases a question and answer period should be added to the allowed time of the talk.

1. Technical Employment
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3. Using Engineers to Advantage
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9. Recruiting Men for Positions
10. Making Contacts for Positions
11. Employment Interview by the Employer
12. Employment Interview by the Engineer
13. The Engineer and the Organization
14. The Acclamation Period of Technical Personnel
15. On-the-Job Training
16. Checking the Technical Person's Progress
17. Merit Rating
18. Position Classification or Job Evaluation

The foregoing talks by Mr. Allen are available for any chapter meeting. He can be reached at Engineering Societies Personnel Service, Inc., 84 E. Randolph, Chicago, Ill.

SOME ADVANTAGES OF NATIONAL CERTIFICATION

FRANK H. PROUTY

We all hope, and most of us believe, that eventually all states will have minimum requirements for engineering registration, at least equal to those set up in the Model Law.

The standards of the National Bureau of Engineering Registration are higher than those contained in the Model Law. Any engineer registered in his home state may apply to the Bureau for a Certificate of Qualification. The Bureau makes a careful check of the applicant's education, experience and character references and when the Bureau passes favorably on an applicant and grants a certificate, he may have the satisfaction of knowing that he has met the minimum requirements for a Registered Engineer as established by the combined engineering organizations. He may also inform the pub-

lic by letterhead or otherwise that he holds a Certificate of Qualification from the Registration Bureau.

The Registration Bureau does not supplant the local state registration board, in fact the Bureau will not even consider an application unless the applicant is first registered in his home state or where he is practicing.

In states where the requirements for registration are either borderline or definitely below minimums determined as acceptable by the Model Law, qualified engineers should find it to their advantage to hold a Certificate as issued by the National Bureau of Engineering Registration. The registration laws of more than a majority of the states contain specific reference to this certification which is intended to expedite interstate registration. Any registered engineer crossing a state line and practicing under the 30-day exemption permit allowed in most states, will be accepted more favorably if he holds a certificate from the Registration Bureau whose high standards are generally known than if his registration is in one of the 48 states with standards not generally known or requirements less than the Model Law.

The cooperation of Registration Boards in all states is particularly sought and desired by the Registration Bureau in order that engineers may be informed of the availability of such national certificate.

Registration Bulletin

THE MARK OF THE FOREHEAD

Two brothers, convicted of stealing sheep, were branded on the forehead with the letters S.T., meaning "Sheep Thief." One of the brothers was unable to bear the stigma, and tried to bury himself in a foreign land. But men asked him about the strange letters, so he kept on wandering restlessly, and at length, full of bitterness, died and was buried far from home.

The other brother said to himself, "I can't run away from the fact that I stole sheep. I will stay here and win back the respect of my neighbors and myself."

As years passed, he built a reputation for integrity. One day a stranger came and saw the old man with the letters on his forehead. He asked a native what they signified.

"It happened a great while ago," said the villager. "I've forgotten the particulars, but I think the letters are an abbreviation of 'Saint'."

—Macarty's Illustrations.

I do not despise genius—indeed, I wish I had a basket-full of it. But yet, after a great deal of experience and observation, I have become convinced that industry is a better horse to ride than genius. It may never carry any man as far as genius has carried individuals, but industry—patient, steady, intelligent industry—will carry thousands into comfort, and even celebrity; and this it does with absolute certainty.

—Walter Lippmann.

APPROVES MODIFIED ORGANIZATION FOR ENGINEERS JOINT COUNCIL

At its September meeting in Decatur, the Central Illinois Section, American Society of Civil Engineers adopted a resolution urging the A.S.C.E. Board of Direction to endorse the A.I.E.E. Unity Plan Proposal. This plan is based upon the principle that the satisfactory and democratic operation of E.J.C. demands a "grass roots" membership. When this last is accomplished we will have the beginning of a unified profession.

The plan as proposed has been termed the "Pittsfield Plan" because it was formulated by the Pittsfield General Electric Engineers Association (a non-union organization). The proposed unity organization is shown in the accompanying diagram. This has been previously published in *Electrical Engineering* for April, 1953, and is published here for the information of the members of I.S.P.E. who have long been interested in unity.

(See below)

NATURE CREED

I believe in the out-of-doors as my garden; the wild flowers of the field, trees of the woods, the mosses and flowerless plants of the by-ways to be enjoyed.

I believe in the music of the birds, and the strength which comes from the hills in the silence of the night.

I believe the beauty of the world is in the eyes and ears of the beholder; the dainty cut-fern and the clear full song of the wood-thrush are one, since each is a form of beauty.

I believe God is ever near man, as I can hear Him in the call of the chickadee, and see His handiwork in the colors of the mountainside.

I believe, to be happy and free, we must respect all life, that those things which are our heritage may be enjoyed by our children.

I believe that it is my duty to teach others, that they may learn, as they follow the long brown path, to find the peace and contentment which others have found.

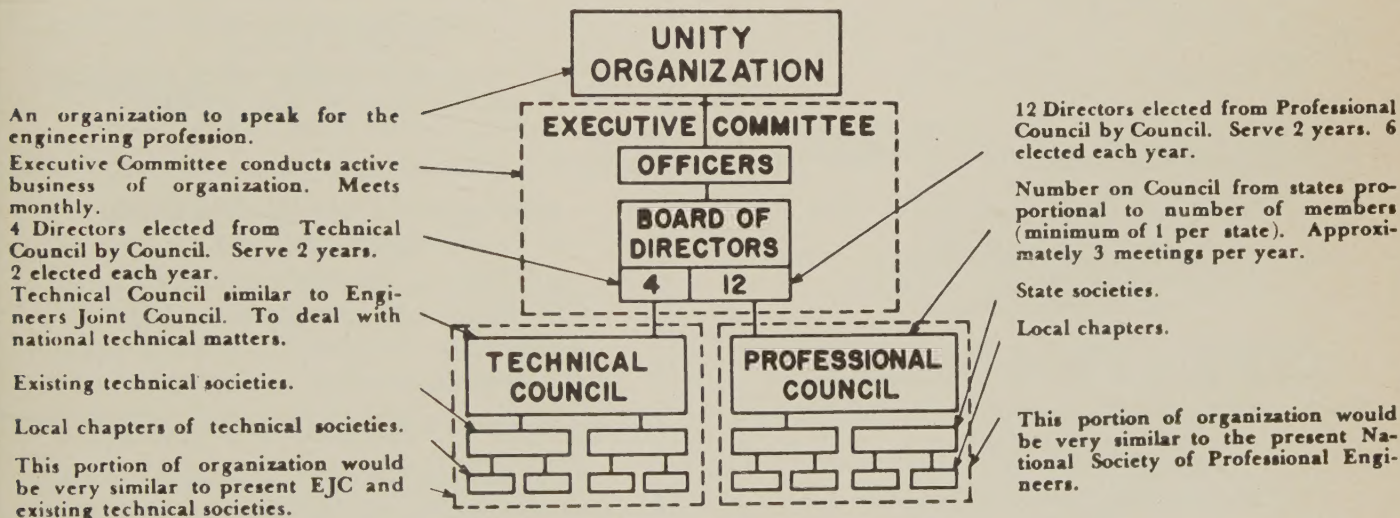
—Adapted from prize-winning poem in Allegheny County Garden Club contest, by Edna Hewes McMurtry.

UNITY ORGANIZATION PROPOSAL

By

General Electric Engineers Association

(Bridgeport, Fort Wayne, Lynn, Pittsfield, Schenectady, and Syracuse)



A. Membership

1. Professional Engineer (those who meet or have met the Salary Stabilization Board qualifications).
2. Scientists (such as physicists, chemists, metallurgists) with educational and experience requirements similar to Salary Stabilization Board qualifications for engineers.
3. Engineers and scientists in training
4. Students.

B. Financial

1. Dues from individual members.
2. Technical societies to support the Technical Council.

C. Committees

1. Standing committees shall exist to perform functions of public, organizational and internal affairs. Some of the major committees would be Education, Legislative Affairs, Public Relations, Publications, National Defense, Economic Status, Civic Affairs, and Ethics.
 - (a) Standing committees shall exist at the national, state, and local levels.
 - (b) National committees shall be appointed by the Executive Committee.

Such an organization is designed to include all members of the engineering profession with the maximum of participation by the members at the local level in shaping policies. The governing body should represent the viewpoints of all parts of the profession and be directly responsible to the individual members, rather than through other societies. Activities should include economic matters in addition to technical, professional matters.

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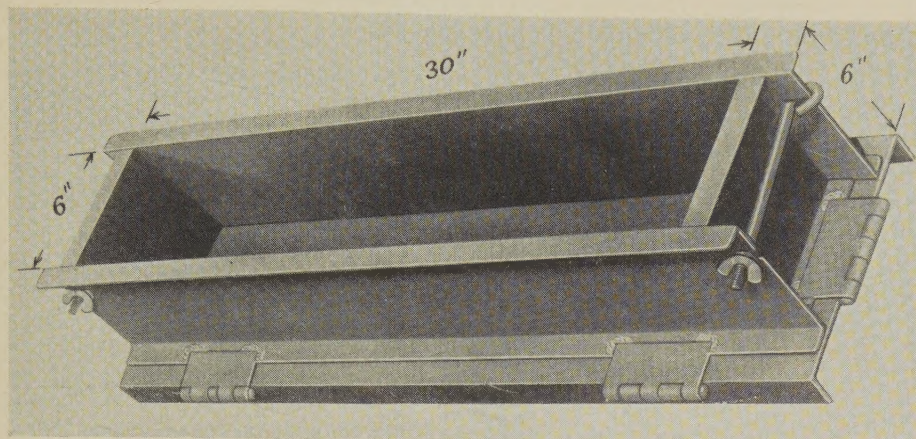
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RASHNESS AND TIMIDITY

Good driving calls for a happy medium between rashness and timidity, says California State Automobile Association. Rashness blends easily into recklessness, with serious consequences, while timidity causes a driver to react in ways not expected by others on the road. Don't be afraid of other drivers—but do cultivate a healthy respect for them.

I hold every man a debtor to his profession;
from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavor themselves by way of amends to be a help and ornament thereunto.

Sir Francis Bacon



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OVER THE MANAGER'S DESK January 1955

As the New Year gets under way, there's only one thing we in Engineering Societies Personnel Service, Inc. can say and that is

HAPPY NEW YEAR

and may 1955 bring you joy and fulfillment of the many plans you have and things you do.

BONNELL H. ALLEN

MEN AVAILABLE

Sales Engr. E.E. 30. Four yrs. contact engineers and purchasing people of electronics mfg. and aircraft co. on dynamotors, FHP D.C. Motors and aircraft inverters and alternators. \$5000. Chicago. 41-PE

Mining Engr. 26. Two and one-half yrs. supervising, purchasing, surveying and general engrg. for construction of underground storage of low pressure gases. \$5000. Midwest. 42-PE

Development. 28. Ten mos. making mechanical seal installation in different pumps. 6 mos. research work on the automatic equipment for a 500-tons heavy hydraulic press. \$5500. Chicago. 43-PE

Development. B.M.E. 31. Eight yrs. design development, layout and detail work on structural and sheet metal, mechanical devices and machinery. \$6600. Chicago. 44-PE

Chief Engineer. C.E. 58. Sixteen yrs. charge of design, construction, maintenance and administrative responsibility for all project activities. \$12,000. Midwest. 45-PE

Time Study. Ind.Eng. 30. Seventeen mos. layouts methods, time study, set standards and wage incentives. \$4800. Midwest. 46-PE

Elec. Engr. E.E. 43. Five and one-half yrs. design, drafting, layout, and power and lighting distribution and control drawings. Seven mos. products and methods, testing, checking of fractional HP motors. \$6000. Midwest. 47-PE

Elec. Engr. 46. Seven yrs. labor and material take off and pricing, industrial wiring design and installation. \$7800. Midwest. 48-PE

Designer. E.E. & Adm.E. 31. One yr. and one-half doing new design and modification of existing design of hermetically sealed snap action switches. \$5400. Midwest. 49-PE

Design Engineer. M.E. 33. Six mos. design of automotive body hardware. Seven yrs. design and development of hand tools, portable power tools, semi and full automatic machines. \$7200. Midwest. 50-PE

Metallurgist. Met.Eng. 27. Three yrs. research metallurgist investigating and writing reports on customer complaints, shop problems, and conduct research. \$5400. Midwest. 51-PE

Devel. Engr., Chem. Engr. 28. Nineteen mos. varnish wax and remover formulations. Six wks. air conditioner efficiency calculations. Fifty-two mos. chem. engr. on condensers, vacuum pumps and steam injectors. \$5600. Midwest. 52-PE

Chem. Engr. Ph.D., Ch.E. 37. Six mos. polymer development equipment design and statistical analysis. Two yrs. process design and theoretical correlations. \$6600. Midwest. 53-PE

Professor. M.C.E. 35. Five yrs. teaching structural engineering courses. Four yrs. design, layout and analysis of structural aspects of copper processing plant, power plant, sewer plant and laboratories. \$8000. Midwest. 54-PE

POSITIONS AVAILABLE

Research and Development. Liquefied Gas. M.E. Age: 25-35. 2 plus yrs. exp. in developing products for liquid flow gases or similar products. Duties: testing competitors' products and develop improvements on current line. For mfrgr. of liquid gas. Salary: \$400-\$500 per mo. Employer will negotiate fee. Location: Chicago. C-2403(a)

Refrigeration Research. Age: 25-35. 2 plus yrs. exp. in developing refrigerated display cases, butcher boxes, etc. Knowledge of refrigerated show cases. Duties: research and development of refrigeration units for products similar to above. Will have to pay own moving expenses to Western Michigan. For a manufacturer of show cases. Salary: \$500-650 per mo. Employer will negotiate fee. Location: Michigan. C-2403(b)

Plant Superintendent. M.E. Age: 30-35. 2 plus yrs. exp. in production work in packaging industry. Duties: in charge of production, personnel, engrg., etc., for packaging. For manufacturer of scouring powders. Sal.: \$600/mo. Empl. will pay fee. Location: Chicago. C-2420

Metallurgist. 3 plus yrs. exp. in electroplating or anodizing work. Knowledge of plating work and solutions. Duties: gathering information as to solutions for rare metal cleaners, formulating solutions and supervising use. For a stampings manufacturer. Sal.: \$500 to \$550 per mo. Location: Indiana. C-2433(a)

Canadian Sales Engineer. M.E. Canadian University. Age: up to 45. Must be Canadian citizen. Recent Grad. or better with knowledge of operating or selling to steam power plant. Duties: selling line of well known American power plant instruments and controls for steam plants. Will sell, service and may eventually do some supervising of assembly New Canadian subsidiary of old American firm. For Instruments' mfrgr. Sal.: \$4200-7500 plus commission and stock participation. Location: Canada. C-2424

Staff Mechanical Engineer. M.E. Age: 30-45. 7 plus yrs. exp. in plant engineering and maintenance in heavy chemical process industries and good report writer. Duties: assist Chief Mech. Engr. on assigned projects covering mechanical equipment and plant design, maintenance improvement investigations, preventive maint., cost control, etc. For a mfrgr. Sal.: up to \$8400. Employer will negotiate fee. Medium amount of traveling. Location: Chicago headquarters. C-2425

Chemical Engineer. Ch.Eng. Age: up to 40. 5 plus yrs. exp. in processing plants such as acid, phosphate, potash or silicate plants. Knowledge: processing and large volume production. Duties: assist in development of chemical engineering program, collecting and evaluating process design data, designing flow charts, estimating production costs, selecting equipment, assist in initial operation of new facilities, and coordinating specific projects. For a mineral mfrgr. Sal.: \$8500 plus depend. on exp. Employer will negotiate fee. Medium amt. of traveling. Loc.: Chicago Headquarters. C-2432

Process Engineer. M.E. Age: up to 45. 4 plus yrs. exp. in process engineering of sheet metal fabrication and/or handling of stainless steel. Knowledge of metallurgy helpful. Duties: heading up process engineering function and methods improvement and coordinating production and development. For a mfrgr. of dairy equipment. Sal.: \$650-\$700 depending on exp. Employer will negotiate fee. Location: Wisconsin. C-2405

Assistant Tooling Engineer. Age: 30-40. 5 plus yrs. exp. in deep drawn die processing work. Duties: estimating, processing and administrative phase of engineering on electroplating, anodizing, and stamping of rare sheet metals for close tolerance aircraft and automotive work on Gov't controls. Must be clearable with F.B.I. For a stampings' mfrgr. Salary: up to \$600 per mo. Location: Indiana. C-2433(b)